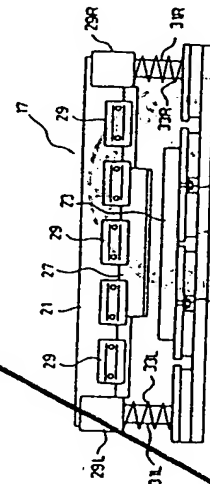


(54) DIE-SET SYSTEM FOR BENDING AND DEVICE FOR AUTOMATICALLY CHANGING DIE USING ITS DIE

(11) 4-158926 (A) (43) 2.6.1992 (19) JP
(21) Appl. No. 2-284324 (22) 24.10.1990
(71) AMADA METRECS CO LTD (72) TAKESHI SANO(1)
(51) Int. Cl⁵. B21D5/02, B21D37/10

PURPOSE: To make it unnecessary to execute centering for die and to easily attach the die to the bending machine by supporting an upper die holder holding an upper die and a lower die holder holding a lower die with both guide posts and making the upper and lower dies to one body.

CONSTITUTION: A lower die 23 is fixed on a lower die holder 19, an upper die 27 is fixed on the lower side of an upper die holder 21 with a fixing tool 29. A guide post supporting device 29R, L are set at both sides of the upper die holder 21, guide posts 31R, L are attached in standing at both sides of the lower die holder 19. And springs 33R, L are interposed between the guide post supporting device 29R, L and the lower die holder 19, the holder 19 is kept at the regular interval between the upper die holder 21 with the energized force of the springs 33R, L. Therefore, in the die set system die for bending 17 the lower die 23 and the upper die 27 are held integrally and the centering of the upper and lower dies 23 and 27 is completed, so the centering work on the machine is neglected, and the bending work can be started immediately.

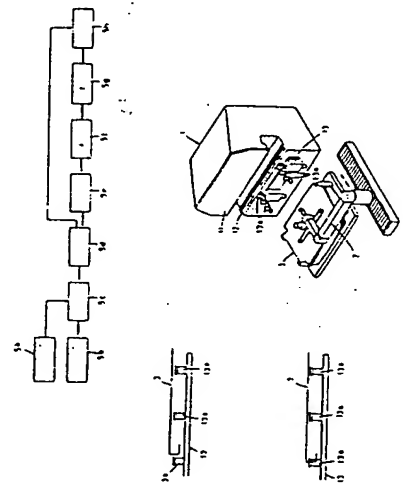


(54) METHOD AND DEVICE FOR PREPARING PROGRAM FOR PASSING WORK FOR PRESS BRAKE ROBOT

(11) 4-158927 (A) (43) 2.6.1992 (19) JP
(21) Appl. No. 2-280375 (22) 18.10.1990
(71) DAIKIN IND LTD (72) YOSHIYUKI IMANISHI
(51) Int. Cl⁵. B21D5/02, B25J13/00

PURPOSE: To improve the reliability of the program for passing the work by discriminating whether the work interfaces with the work supporting part or not and automatically preparing the program for passing the work.

CONSTITUTION: The work passing program preparing device is constituted of the pre-set system data of the press brake 1, the data storing means 5a, 5b storing the data for bending the work, the calculating means 5c calculating the existing range of the flange 3 to the clamping position of the work with the press brake robot 2, the interference judging means 5d judging whether the work supporting part 13 interferes with the existing range of flange in the state that the work 3 clamping position with the press brake robot 2 is coincident with the work supporting scheduled position or not, and the means 5d-5h where when the interference is not generated, the work passing program that the work is supported at the supporting scheduled position with the work supporting part 13 and is turned front side rear side is made automatically, when the interference is generated, the work passing program that the work is supported at the position of out of the supporting scheduled position and it is turned front side rear side is made automatically.



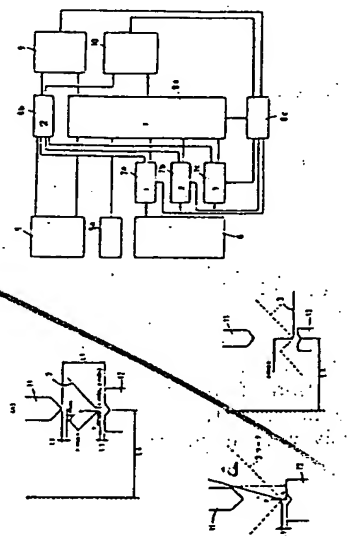
5a: system data storing part, 5b: work data storing part, 5d: judging part, 5c: moving amt. calculator, 5g: the 2nd selecting part, 5h: program making part, 5i: the 1st selecting part

(54) METHOD AND DEVICE FOR PREPARING PROGRAM FOR PULLING WORK OUT FOR PRESS BRAKE ROBOT

(11) 4-158928 (A) (43) 2.6.1992 (19) JP
(21) Appl. No. 2-280374 (22) 18.10.1990
(71) DAIKIN IND LTD (72) YOSHIYUKI IMANISHI
(51) Int. Cl⁵. B21D5/02, B25J9/10

PURPOSE: To completely eliminate the need of manpower for preparing program for pulling the work out by discriminating whether the work can be pulled out as it is, or if it is turned, it can be pulled out, and automatically preparing the program for pulling the work out.

CONSTITUTION: The work pulling out program preparing device is constituted of the data storing means 5, 5a, 6 storing the system data of the press brake 1 and the work bending data, the 1st calculating means 7a calculating the flange existing range of the work 3, the 2nd calculating means 7b calculating the flange existing range in the state that the work 3 is turned to the limit position in the approaching direction to the movable die of the press brake 1, the 3rd calculating means 7c calculating the flange existing range in the state that the work 3 is turned to the horizontal, the discriminating means 8a, 8b discriminating the possibility of pulling out the work based on the flange existing range and the system data, the identifying means 8c identifying the state of the work discriminated to be able to be pulled out, and the program preparing means 9 for pulling the work out.



5: system data storing part, 6: work data setting part, 10: displaying part, a: inclination limit point, 5a: clearance setting part